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FACT SHEET

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Mower Adjustment

The mower is one of the most common farm machines, yet it is one of the most maladjusted. In a study of mowers on Minnesota farms only 8 of 47 were in correct adjustment.

Heavy draft, ragged cutting, and excessive breakage are usually due to lack of proper adjustment, poor lubrication, or excessively worn parts. A few hours spent reconditioning a mower can result in greatly improved field performance.

You should be able to run a pitman mower at 3 1/2 to 4 m. p. h. without clogging, and a balanced head mower at almost twice this speed. At these speeds you can cut 2 1/2 to 5 or more acres of hay per hour; a slower mowing rate will affect your efficiency in putting up top quality hay.

Most mowers are basically the same, but always refer to the operator's manual in case of doubt. Some of the basic adjustments and repair jobs to be done or checked are:

LEAD: The outer end of a 7-foot cutter bar should lead the inner end by 1 3/4 inches.

Use long string (15 feet) and a yardstick to check lead. The cutter bar should be at right angles to the center line of the tractor during cutting, thus the tractor itself can be used as a reference line. Run a line from behind the rear tires to the front of the cutter bar (figure 2). Then compare the distance from the string to the inner and outer end. In a 7-foot bar, distance (A) at the outer end of a tight string should be 1 3/4 inches shorter than distance (B). Adjustments are made at the rear hinge pin or at the breakaway mounting bolts.

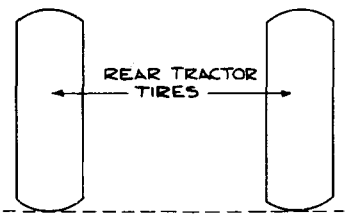
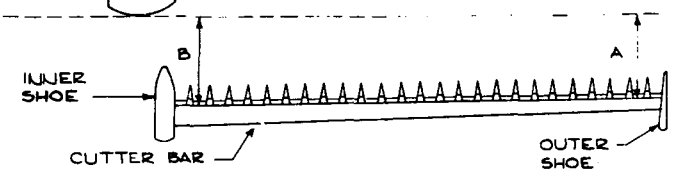


Figure 2. LEAD: There should be a 1/4-inch lead for each foot of cutter bar length. For a 7-foot cutter bar the lead should be 1 3/4 inch. Remove slack before checking.



Lead is affected by the method of mounting and the wear on the hinge pins and must be checked every year or whenever difficulty is encountered in mowing.

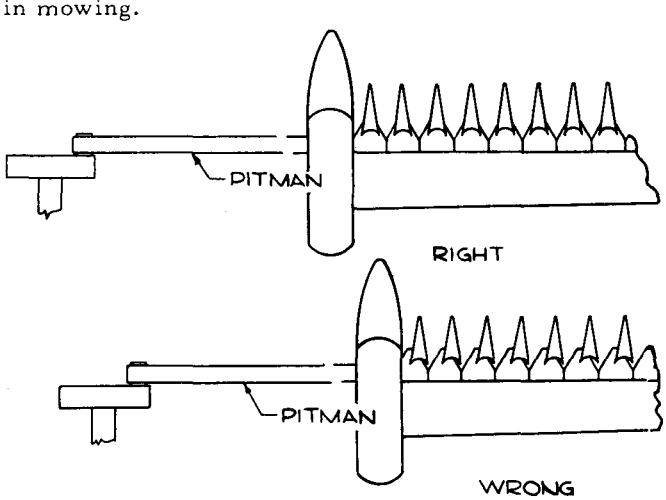


Figure 3. REGISTER: Right--When the pitman is at the outer end of its stroke the section should center behind the guard. Wrong--If the knife is not in register very ragged cutting and drag on the cutter bar will result.

REGISTER: Register should be checked occasionally in all pitman mowers, especially if a new knife or pitman is installed. Turn the flywheel to the inner or outer end of the knife stroke. At these points the section should center behind the guard (figure 3). There is a "dead spot" at the end

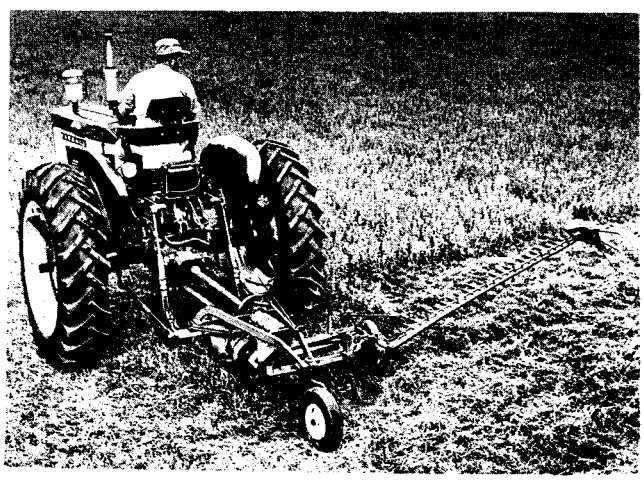


Figure 1. Proper adjustment of the mowing machine is essential to clean cutting, minimum wear, and minimum power requirements.

of the stroke where very little knife travel occurs, thus it is better to have the knife section behind the guard so that hay can fall between sections during forward travel of the mower. Adjustment is made by moving the yoke on the drag bar. There may be shims or pins, or the yoke may be threaded for this adjustment.

Very ragged cutting and drag on the cutter bar will result if the sickle is not in register.

CUTTER BAR REPAIR: The knife must be removed to replace worn sections. A mower repair block is helpful in this operation. Sections can be removed by striking on the rear of each knife with a hammer while supporting the knife bar on the repair block or on a vise. Do not flatten rivets when replacing sections; flattening causes a weak connection. A loose section will jam in the guard. A rivet set is a big aid in making a rounded head on the rivet.

Check the knife bar and straighten if necessary; a long piece of channel iron is a suitable anvil.

GUARDS: Too often the guards are overlooked when a mower is reconditioned. Worn ledger plates must be removed first and replaced with new ones. A mower repair block is again a big aid. Begin driving the rivet out from the top with a drift punch and finish with a 3/16-inch pin punch (figure 5). Do not strike the pin punch too hard, it will bend or break easily. A flat-headed rivet is used to fasten the new ledger plate; be sure that it is flush with the surface of the plate, otherwise the effective shear action of the cutting parts will be affected.

After guards are replaced they must be aligned so that all ledger plates are in contact with the knives. A chalkline may be stretched

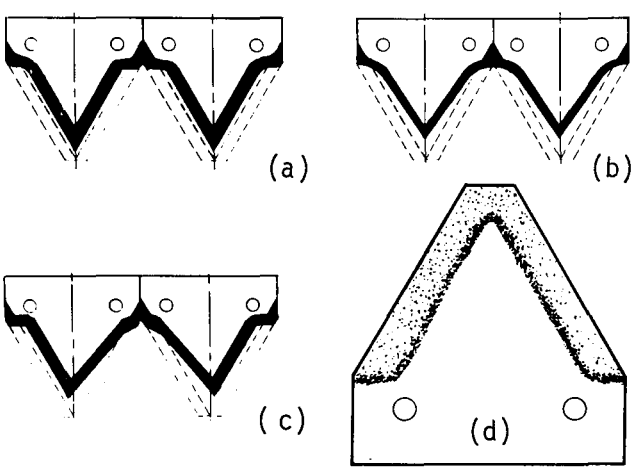


Figure 4. SHARPENING: It is essential to maintain the original angles when sharpening knife sections (a). Incorrect sharpening (b) and (c) will result in poor cutting and increased power requirements. Do not grind beyond the hardened portion of the section (d). The inner portion of the section is softer in order to withstand shock; when ground to the softer metal the section must be discarded.

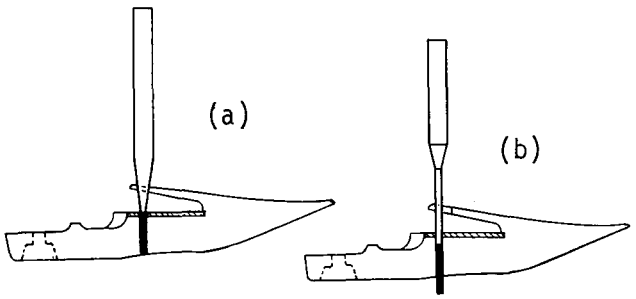


Figure 5. Start driving the ledger plate rivet with a drift punch (a) and finish with a pin punch (b).

over the top of the ledger plates while guards are bent either up or down so that all plates just touch the string. Check to see that guard lips have not been bent down; if they are too close to the knife, choking may result. Straighten any wings that may be bent.

Replace wear plates and holddown clips if badly worn. Adjustment is made by moving the wear plates forward until they all touch the back of the sickle bar. The holddown clip (figure 6) is moved by striking the top of the clip with a hammer (with the knife backed out). The thickness of a tin can cover is the recommended clearance. The function of the wear plate and clip is to keep the knife in contact with the guard.

After all adjustments are made, tighten each guard bolt with a box-end wrench while tapping on the bolt head with a hammer. A loose guard may cost much lost time due to broken knives or guards.

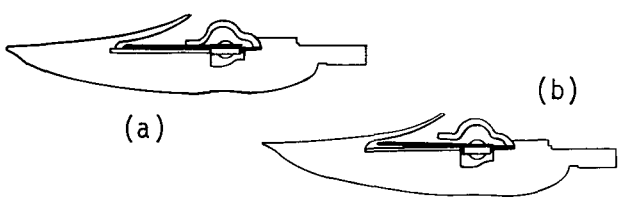


Figure 6. Correctly adjusted hold down clips (a) keep the knife in contact with the ledger plates. Excessive clearance between the clips and the knife (b) will result in poor cutting because of lack of contact between the shearing surfaces.

OPERATION: Make sure that the breakaway device on your mower is functioning to protect the machine in case of overload. Rusting often prevents this device from functioning. Loosen the breakaway and tighten only enough to keep in operating condition for the season.

The outer and inner shoe should be at the same height for uniform cutting and subsequent drying of the crop.

Some mowers have belt drives and some have chain drives; consult your manual for proper tension. Check bearings for wear and replace any that are loose before the haying season begins.

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